1.4 Radon 変換

$Q \subset \mathbb{P} \times \mathbb{P}^\vee$ universal hyperplane

$1 \in E^\vee \otimes E \to \mathcal{O}(1,1) = pr_1^* \mathcal{O}(1) \otimes pr_2^* \mathcal{O}(1)$ の零点

$$0 \to \Omega^1_{\mathbb{P}} \to E \otimes \mathcal{O}_{\mathbb{P}}(-1) \to \mathcal{O}_{\mathbb{P}} \to 0$$

$$\begin{array}{ccc} \mathbb{P}(T^*\mathbb{P}) & \subset & \mathbb{P} \times \mathbb{P}^\vee \\ \| & & \\ Q & = & \mathbb{P}(T^*\mathbb{P}^\vee) \end{array}$$ Legendre 変換

$i: X \hookrightarrow \mathbb{P}$ $\quad X \times_{\mathbb{P}} Q = \mathbb{P}(X \times_{\mathbb{P}} T^*\mathbb{P})$ $\quad X \times_{\mathbb{P}} T^*\mathbb{P} \to T^*X \supset C$

定理 $C = SS\mathcal{F}$ ならば $\mathbb{P}(\tilde{C}) = E_{p^\vee}(p^*\mathcal{F}) \subset X \times_{\mathbb{P}} Q$

$X = \mathbb{P}$ に帰着. $X \overset{i'}{\hookrightarrow} V \overset{j}{\subset} \mathbb{P}$

$$SS(i_*\mathcal{F})|_V = SS(i'_*\mathcal{F}) = i'_\circ SS(\mathcal{F}) = \tilde{C}$$

Th (Beilinson Thm 3.2) $\quad \mathbb{P}(C) = E_{p}(p^{\vee *} R\mathcal{F})$.

Lemma (= Lem 3.3) $\quad C' = SSR\mathcal{F}$ ならば $\mathbb{P}(C) = \mathbb{P}(C')$

$$\mathbb{P}(C) = \mathbb{P}(C') = E_{p^\vee}(p^* R^\vee R \mathcal{F})$$

$$\begin{tikzcd} \mathbb{P} & Q \arrow[l] & Q \times_{\mathbb{P}^\vee} Q \arrow[l] \arrow[d] \arrow[dd, bend left] \\ & \mathbb{P}^\vee & Q \arrow[l] \arrow[d] \\ & & \mathbb{P} \end{tikzcd} \qquad \begin{tikzcd} Q \times_{\mathbb{P}^\vee} Q \arrow[d] & Q \arrow[l] \arrow[d] \\ \mathbb{P} \times \mathbb{P} & \mathbb{P} \arrow[l] \end{tikzcd}$$

$$\mathbb{P} \leftarrow \mathbb{P} \times \mathbb{P} \to \mathbb{P}$$

$Q \to \mathbb{P}$ $\quad \mathbb{P}^{n-1}$-bdle

$Q \times_{\mathbb{P}^\vee} Q - Q \to \mathbb{P} \times \mathbb{P} - \mathbb{P}$ $\quad \mathbb{P}^{n-2}$-bdle

$\mathcal{F}$ と $R^\vee R\mathcal{F}$ のずれは 定数層.

$$E_{p^\vee}(p^* R^\vee R^\vee \mathcal{F}) = E_{p^\vee}(p^* \mathcal{F})$$